

# Inflation Rate, Foreign Direct Investment, Interest Rate, and Economic Growth in Sub Sahara Africa: Evidence from Emerging Nations

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## ABSTRACT

The article aimed to investigate the relationship between inflation rate, foreign direct investment, interest rate, and economic growth of ten (10) emerging Sub-Saharan African countries for the period 1998 to 2018. The random-effects GLS regression estimator was employed to examine the equilibrium relationship between the variables. From the results, foreign direct investment had a significantly positive influence on GDP, while the inflation rate and interest rate trivially positively predicted GDP. Based on these findings, the study recommended that the government of emerging nations should put prudent measures to improve inflation, interest rate, and foreign direct investment within the economy for sound wellbeing.

**KEYWORDS:** Inflation rate; foreign direct investment; interest rate; economic growth; Sub-Saharan Africa, emerging nations

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## 1. INTRODUCTION

One of the macroeconomic policies' most significant goals is to maintain fast economic growth and a degree of the stable inflation rate, foreign direct investment, and interest rate. The problem, then, is: which amount of inflation rate, foreign direct investment, and interest rate is realistic? This problem is really hard to answer since it depends on the existence and function of a nation. The conclusion will differ from nation to nation, and over the years, it can also differ within a single country. Empirical research could offer a guide to a reasonable degree of explanation. Over the years, sub-Saharan countries have experienced numerous ups and downs of fiscal and monetary policy problems. This essay attempts to analyze the impact of exits on economic growth (GDP) between inflation, foreign direct investment, and interest rate. The findings of this study provide direction for macroeconomists, financial commentators, scholars, and policy-makers while the partnership remains contentious or rather indecisive. Examining the relationship between inflation and economic development is not a new area of study. It has been thoroughly researched over the last decades. However, it remains unclear whether inflation and economic growth have a positive or negative relation. Mubarik (2005) indicates that low and steady inflation stimulates and vice versa economic growth. Few authors, particularly those in favor of the Systemic and Keynesian

viewpoints, agree that inflation is not detrimental to economic development.

In contrast, those who support monetarist views claim that inflation is detrimental to economic growth through its welfare costs. Danladi (2013) investigated the relationship of four western African nations (Burkina Faso, Ghana, Nigeria, and Senegal) between inflation and economic growth; Surprisingly, they have found a 9 percent level over which inflation harms production. That makes this study important in figuring out the behavior of the macroeconomic variables' relationship. Checking the theory that there is a positive or negative association between inflation and economic development is imperative. The approach towards incoming foreign direct investment has shifted considerably in the last few decades, as most African countries have liberalized their international policies to draw investments from international multinationals (Opoku, Ibrahim, & Sare, 2019). They see a dramatic shift in developing-country views toward FDI. It is now used as an essential instrument for economic growth. Investment is a major factor impacting economic development. Investment is thought to stimulate economic growth and improve productivity, particularly in developed countries. Besides, foreign investment in developed countries is especially dominant in fostering

economic growth (Ameer and Xu, 2017; Riaz and Riaz, 2018; Sothan, 2017). Internationalization has driven the world economy to be more open to international exchange and investment. One influential feature of this phenomenon is a foreign direct investment (FDI). Countries worldwide have opened up their markets and built opportunities for attracting international investment with the expectation that global activity would be promoted.

Interest rates play a significant role in efficient capital distribution aimed at increasing economic growth and development. It is a demand management strategy for achieving domestic and foreign equilibrium, with special attention to bank mobilization and credit generation for enhanced economic development (Yahya, Zakaria, and Abdullahi, 2013). Interest rates are important elements in translating monetary policy behavior to economic activity. Reducing the volume of money in demand then contributes to currency rise, but lower amounts of expenditure and consumption. It can be assumed that interest rates have a high correlation to exchange rates (Jordaan, 2013). Interest rates are part of monetary policy, market-related money flow, and as a way to neutralize inflation. (Asghapur et al., 2014). This article was carried out in 10 Sub-Saharan emerging nations (Ghana, South Africa, Nigeria, Gabon, Tunisia, Morocco, Ivory Coast, Algeria, Togo, Cameroon). The study year was 1999 up to 2018. The article adapted the random-effect of the GLS regression to conclude the affiliation between inflation rate, foreign direct investment, interest rate, and economic growth.

The remain of the research is outlined as section 2 review empirical studies and developed a hypothesis. The method of analysis is discussed in section 3, and section 4 shows the results and discussions of analysis and the conclusion and policy recommendation in section 5.

## 2. LITERATURE REVIEW

### 2.1. Relationship Between Foreign Direct Investment and Economic Growth

Susilo (2019) defined foreign direct investment (FDI) as a strategic step by economies to invest or transfer capital and technologies. As indicated by Funke (2009), bridging the gap between domestic savings and investment and bringing the latest technology and management know-how from developed countries, foreign direct investment (FDI) can play an important role in achieving rapid economic growth in the developing countries. Wang (2009) finds that countries with a favorable investment climate, larger GDP, and faster growth rate with advanced infrastructure can cause FDI inflow. Herzer et al. (2008) used data from 28 developing countries and concluded that there no effect of FDI on economic growth. Karimi and Yusop (2009) showed a lack of significant evidence on a bidirectional causality between GDP and FDI. Falki (2009) concluded that FDI had not played a role in enhancing economic growth in Pakistan. Agrawal and Khan (2011) showed that the impact of FDI on china's growth is more than the impact of FDI on the growth of India and other variables are much significant to predict growth rather than FDI. Other research finds a negative link on FDI in underdeveloped countries due to economic instability and weak law enforcement systems (Ansar, Muhammad, & Siddique, 2018). Curwin and Mahutga (2014) studied post-socialist transition countries and affirmed that the inflow of FDI is negatively related to economic growth in

the short and long run. They attributed their findings to weaknesses in the institutional environment. Forte (2013) asserts that the effect of foreign direct investment depends on the domestic condition of the host country. Soric (2015) studied the interrelationship of FDI and GDP in the European transition countries and concluded that Poland, Czech Republic, and Hungary attracted many new technologies, management knowledge, and skills from the developed countries of the EU. Their results added to the numerous findings that FDI is positively related to GDP growth and vice versa. Still, it does not fundamentally have an autonomous and positive effect on GDP development because it depends on other economic and social conditions such as human capital, financial system development, etc. Receiving foreign direct investment is highly related to economic growth. Foreign Direct Investment (FDI) represents a significant space within the socio-economic development of any economy. The high inflow of FDI leads to a decrease in poverty, unemployment, and high economic growth in developing countries. Falki (2009) concluded that FDI had not played a role in enhancing economic growth in Pakistan. Similarly, Khan and Khan (2011) exposed that FDI is an accelerating factor of GDP in the long run for Pakistan for 1981-2008. Melnyk et al. (2014) also investigated that increase in FDI is positively correlated with the specific region's growth rate for post-communist transition economies. Juma (2012) found that FDI has a positive and significant impact on economic growth for Sub-Saharan Africa for the period 1980 to 2009. Khaliq (2007) stated that the inflow of FDI is positively correlated with economic growth in Indonesia from 1997 to 2006. Ghazali (2010) exposed a bidirectional causality between FDI and domestic investment, and between domestic investment and economic growth. The study also found a one-way causality from FDI to economic growth. Though receiving foreign direct investment is highly related to economic growth and development. Adewumi (2007) concluded that FDI contributes positively to economic growth, but insignificant in most developing economies for 1970-2003. The results from Tan and Tang (2014) confirm the existence of long-term causal links between FDI and economic growth in the ASEAN-5 regions for the period 1970-2012. Iqbal et al. (2010) found the bidirectional causality FDI and economic growth for Pakistan from 1998 to 2009. Similarly, Zekarias (2016) highlighted the effect of FDI on economic growth within the region of eastern Africa for the time duration 1980-2013. The study showed that FDI is a key driver of economic growth, so there is a need to attract more FDI. Hodrob (2017), in a study, indicated that FDI harms Palestinian economic growth, in contrast to the impact of domestic investment and imports, which was investigated to be positive. Kastrati (2013) found that overall foreign direct investment positively affects economic growth, but the foreign direct investment is not all since potential negative impact still exists. Moreover, Iqbal et al. (2014) conducted the same research in Pakistan and proved that foreign direct investment affected economic growth. FDI has a positive impact on economic growth in developed economies (Melnyk et al., 2014 and Khaliq, 2007). On the other hand, FDI harms underdeveloped economies (Saib et al., 2013). Based on the literature described above, the effect of FDI varies from economy to economy. The formulated hypothesis then became;

**H<sub>1</sub>: There is a significant positive relationship between FDI and economic growth.**

## 2.2. Relationship Between Inflation and Economic Growth

McLean et al. (2016) define inflation as the sustained rise in the general price level of goods and services within the economy over some time. According to Raza et al. (2013), the general price level of goods and services will rise when there are increased production costs within businesses. From the structuralist point of view, the rate of inflation is positively related to economic growth, while the monetarist postulates a negative relationship between inflation and economic growth. Studies on the relationship between inflation and economic growth are numerous. The discoveries are, however, divergent. For instance, Majumber (2016) studied inflation and its impact on economic growth in Bangladesh. From the VECM results, there was a significantly positive relationship between inflation and economic growth. Mahmoud (2015) discovered a positive relationship between inflation and economic growth in the long run. Jaganath (2014), using time series data, accessed the effect of inflation on development on selected South Asian countries between 1980 and 2012. The correlation analysis revealed that there a positive relationship between inflation and economic growth. Jednak (2018) investigated the association between inflation and economic growth in Poland and Serbia from 1990 to 2016. From the findings, there was no vital correlation between inflation and economic growth. According to Bakare et al. (2015), Granger causality indicates that GDP causes inflation, but inflation does not cause GDP. From the work of literature by (Mallik and Chowdhury, 2001; Hussain, 2011; Behera, 2014), the article developed the hypothesis for the association between inflation and economic growth (GDP).

**H<sub>2</sub>: There is a significant negative relationship between inflation and economic growth.**

## 2.3. The relationship between the interest rate and economic growth

Saxena et al. (2019) studied the relationship between major economic factors and the economic growth of India between 2007-2017. Using three independent variables, Money supply, inflation and interest rate, and GDP proxied for economic growth. The multiple regression test showed interest rate harms economic growth. Babalola (2015) studied the effect of interest rate and other macroeconomic factors on economic growth in Nigeria 1981- 2014 using the ordinary least square (OLS) method of analysis, the Johansen integration test for the long run connection the inputs. The results showed that the interest rate harms economic growth. Osuji (2020) studied the impact of Interest Rate Deregulation on Investment Growth in Nigeria from 1961 to 2017. The study employed an error correction and a vector autoregressive model. The results suggest that the interest rate has no significant relationship with economic growth in Nigeria. Nwadiubu et al. (2014) studied the linkage between interest rate as a measure of financial liberalization and economic growth in Nigeria from 1987 to 2012. The Johansen cointegration test and error correction model were employed for the study. The results indicated that the interest rate has no significant connection with economic growth. Orji et al. (2015) employed the Ordinary Least Square and co integration to study the nexus between financial liberalization and economic growth in Nigeria. Idoko et al. (2014) explore the lending rate has no significant influence on economic development. The study revealed that

the interest rate has a negatively insignificant influence on economic growth. Hatane and Stephanie (2015) revealed a significant adverse association between the interest rate and economic development. Ubesie (2016) conducted a similar study on the impact of interest rate and economic growth from 1980 to 2013 in Nigeria. The study found a positive but insignificant relationship between the interest rate and economic growth. Najafov (2019), in a study, asserted that when interest rate increases, there a corresponding increase in economic growth.

**H<sub>3</sub>: there is a significant negative relationship between the interest rate and economic growth.**

## 3. Data

### 3.1. Data Source and Study Design

Generally, this study is quantitative research. As explained by Given (2008), quantitative research is the systematic empirical investigation of observable phenomena via statistical, mathematical, or computational techniques. The study was specifically experimental because it sought to support, refute, or validate a hypothesis. In other words, the study sought to establish the cause-and-effect relationship that existed between the input (cause) and the output (effect) variables by demonstrating what outcome could occur when the input variable is being manipulated. Thus, the study sought to determine what effect will be on the dependent variable due to the direct manipulation of the independent variables. A panel data of ten (10) selected sub-Saharan countries, namely Ghana, South Africa, Nigeria, Gabon, Tunisia, Morocco, Ivory Coast, Algeria, Togo, and Cameroon, was used for the study. The dataset, which covered the period 1999 to 2018, was extracted from the database of World Development Indicators. The selection of countries and range of sample years offsets some of the critiques that previous studies incurred. Details of the variables used for the study are indicated in **Table 1**.

**Table 1: Variables and Measurements**

| Variable | Unit of Measurement                 | Expected Sign | Source |
|----------|-------------------------------------|---------------|--------|
| GDP      | GDP per capital (constant 2010 USD) | -             | WDI    |
| FDI      | net inflows (% of GDP)              | Positive (+)  | WDI    |
| INF      | Consumer prices (annual %)          | Negative (-)  | WDI    |
| INT      | Real interest rate (%)              | Negative (-)  | WDI    |

### 3.2. Model

In other to comprehensively explore the link between Inflation rate, foreign direct investment, interest rate, and economic growth in emerging sub-Saharan African countries, the following econometric model was proposed:

$$GDP_{it} = \alpha_0 + \beta_1 FDI_{it} + \beta_2 INF_{it} + \beta_3 INT_{it} + e_{it} \dots\dots\dots 1$$

Where GDP is a gross domestic product, FDI is foreign direct investment, INF represents inflation rate, INT is the interest rate,  $\alpha$  is the constant, and  $e$  is the error term which should not be correlated with the regressors,  $i$  ( $i=1,2,3,\dots,N$ ) represents the studied countries and  $t$  ( $1, 2, 3, \dots, T$ ) denote the time frame. All the data analysis was conducted using Stata version 15.0 software package.



#### 4. Results and Discussion of Data Analysis

##### 4.1. Diagnostic and Specification Tests

##### 4.1.1. Test for Multi-Collinearity

Multi-collinearity was detected through the Variance Inflation Factor (VIF) and tolerance ( $1/VIF$ ) tests. From the results depicted in **Table 2**, all the variables were fit enough to be used together in the model because their variance VIF's were less than 5 ( $VIF < 5$ ), and their tolerance levels were far greater than 0.2 ( $1/VIF > 0.2$ ). This implies, there was no multi-collinearity amid the explanatory variables of concern.

**Table 2: Variance Inflation Factor (VIF) and Tolerance Tests Results**

| Variable                  | VIF  | 1/VIF    |
|---------------------------|------|----------|
| Foreign direct investment | 1.04 | 0.958091 |
| Inflation                 | 1.10 | 0.910552 |
| Interest rate             | 1.07 | 0.936978 |
| Mean VIF                  | 1.07 |          |

##### 4.1.2. Panel Level Data Normality Test

The normality test results are depicted in **Table 3**. From the table, the null hypothesis that the distribution of the variables was normally distributed could not be accepted at the 1% significance level. Therefore, a regression estimator that is robust to data abnormality was employed for the study.

**Table 3: Shapiro and Wilk (1965) Test for Data Normality**

| Variable      | Obs | W       | V      | Z      | Prob. > z            |
|---------------|-----|---------|--------|--------|----------------------|
| Gdp           | 200 | 0.74344 | 38.276 | 8.386  | 0.00000 <sup>a</sup> |
| Fdi           | 200 | 0.45691 | 81.022 | 10.112 | 0.00000 <sup>a</sup> |
| Inflation     | 200 | 0.80210 | 29.524 | 7.789  | 0.00000 <sup>a</sup> |
| Interest rate | 200 | 0.92595 | 11.047 | 5.527  | 0.00000 <sup>a</sup> |

Note: <sup>a</sup> denotes significance at the 1% level

##### 4.1.3. Panel Level Heteroscedasticity Test

The Busch-Pagan (1979) and Cook-Weisberg (1983) test results are displayed in **Table 4**. From the results, the null hypothesis that there was no heteroscedasticity among the residuals of the model could not be accepted at the 1% significance level ( $\chi^2=43.91$ ,  $p=0.0000$ ). Therefore, a more generalized regression estimator that is robust to the issue of heteroscedasticity was viewed as appropriate for estimating the study's proposed model.

**Table 4: Heteroscedasticity Test Results**

| Test Type               | Value | Prob.               |
|-------------------------|-------|---------------------|
| Heteroscedasticity Test | 43.91 | 0.0000 <sup>a</sup> |

Note: <sup>a</sup>denotes significance at the 1% level.

##### 4.1.4. Panel Level Autocorrelation Test

The results of the serial test are portrayed in **Table 5**. From the results, the null hypothesis of no serial among the residuals of the model was rejected. Based on this discovery, a more generalized regression estimator that is robust to serial correlation was employed for estimating the study's proposed model.

**Table 5: Test for Serial or Autocorrelation**

| Test Type                          | Value    | Prob.               |
|------------------------------------|----------|---------------------|
| Wooldridge serial correlation Test | 3398.025 | 0.0000 <sup>a</sup> |

Note: <sup>a</sup>denotes significance at the 1% level.

##### 4.1.5. Model Specification Test

To aid in choosing between the fixed effects model and the random-effects model. The residuals of the fixed and random effects GLS regressions for the fitted values of GDP were used to conduct the Durbin-Wu-Hausman test. The results of the test are shown in **Table 6**, and from the results, the null hypothesis of the random effects model has been appropriate than the fixed effects model could not be rejected. In conclusion, the Robust Random Effects GLS regression estimator was used in estimating the study's proposed model because it was robust to the issues of heteroscedasticity, serial correlation, and some other violations of the classical linear regression model.

**Table 6: Model Specification Test**

| Test Type    | Value | Prob   |
|--------------|-------|--------|
| Hausman Test | 1.41  | 0.4939 |

##### 4.1.6. Descriptive Statistics

The descriptive statistics on the study variables are shown in **Table 7**. From the table, GDP had a mean value of  $1.07E+11$ , with a standard deviation of  $1.31E+11$ . The minimum and maximum values of GDP are  $2.55E+09$  and  $4.69E+11$ , respectively. GDP

was positively skewed with a coefficient of 1.438734; this means a greater portion of the GDP distribution fell on the left side of the normal distribution. Finally, the kurtosis value of 3.778031 ([excess (K) = 3.77-3.0 = 0.78]) implies that the GDP distribution was peakier in shape. FDI had a mean of 3.09E+08, a maximum and minimum value of 3.63E+09 and -3.358830, respectively. Also, the FDI distribution was tilted positively to the left with a value of 2.732291. With a kurtosis value of 9.57 ([excess (K) = 9.57-3.0 = 6.57]), implying that FDI was at the pinnacle of the distribution. The sampled countries had mean inflation of 5.026832, a minimum value of -1.936604, and a maximum value of 32.90541. Inflation was skewed positively with a value of 2.022181 indicating that a large percentage of the inflation distribution lies on the left half of the distribution and a kurtosis figure of 8.22 ([excess (K) = 8.22-3.0 = 5.22]). The interest rate, on the other hand, had a mean value of 98.60199 with a standard deviation of 11.64460. The maximum and minimum values of interest rate are 145.1165 and 64.66527, respectively.

**Table 7: Descriptive Analysis of Study Variables**

| Statistic    | GDP                   | FDI                   | INFLATION             | INTEREST              |
|--------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Mean         | 1.07E+11              | 3.09E+08              | 5.026832              | 98.60199              |
| Median       | 3.96E+10              | 2.194931              | 3.290785              | 99.34062              |
| Maximum      | 4.69E+11              | 3.63E+09              | 32.90541              | 145.1165              |
| Minimum      | 2.55E+09              | -3.358830             | -1.936604             | 64.66527              |
| Std. Dev.    | 1.31E+11              | 7.84E+08              | 5.312851              | 11.64460              |
| Skewness     | 1.438734              | 2.732291              | 2.022181              | 0.126637              |
| Kurtosis     | 3.778031              | 9.572033              | 8.224593              | 5.259968              |
| Jarque-Bera  | 74.04296              | 608.7773              | 363.7770              | 43.09670              |
| Probability  | 0.000000 <sup>a</sup> | 0.000000 <sup>a</sup> | 0.000000 <sup>a</sup> | 0.000000 <sup>a</sup> |
| Sum          | 2.14E+13              | 6.18E+10              | 1005.366              | 19720.40              |
| Sum Sq. Dev. | 3.42E+24              | 1.22E+20              | 5617.051              | 26983.75              |
| Observations | 200                   | 200                   | 200                   | 200                   |

Note: <sup>a</sup> denotes significance at the 1% level.

#### 4.1.7. Correlation and significance analysis

The correlation between the dependent and independent variables are shown in **Table 8**. FDI was insignificantly negatively related to GDP ( $r = -0.0872$ ,  $p = 0.2196$ ), indicating an increase in FDI leads to an increase in GDP and vice versa. From the table, inflation had a significantly positive relationship with GDP at the 1% level ( $r = 0.2786$ ,  $p = 0.0001$ ). The above means that an increase in GDP leads to an increase in inflation and vice versa. Finally, the interest rate had an immaterially adverse association with GDP at the 5% significant level ( $r = -0.1523$ ,  $p = 0.0313$ ).

**Table 8: Correlation Matrix**

|               | Gdp                   | Fdi              | Inflation              | Interest rate |
|---------------|-----------------------|------------------|------------------------|---------------|
| Gdp           | 1.0000                |                  |                        |               |
| Inflation     | 0.2786***<br>(0.0001) |                  | 1.0000                 |               |
| Fdi           | -0.0872<br>(0.2196)   | 1.0000           | -0.1965***<br>(0.0053) |               |
| Interest rate | -0.1523**<br>(0.0313) | 0.1036<br>0.1444 | -0.2446***<br>(0.0005) | 1.0000        |

Note: Values in brackets mean probabilities, \*\*\*significance at 1%; \*\*significance at 5%.

Source; STATA output

#### 4.1.8. Panel Model Estimation Results

The long-run equilibrium relationship between the response and the input variables are depicted in **Table 9**. From the table, inflation had an insignificantly positive effect on GDP ( $\beta = 4.94e+08$ ,  $p = 0.680$ ). This indicates that an increase in inflation did not lead to a significant increase in GDP. Also, FDI had a materially positive influence on GDP at the 10% level ( $\beta = 13.72847$ ,  $p = 0.077$ ). The above implies, a unit increase in FDI resulted in a 13.72847 increase in GDP. Additionally, the interest rate had an insignificantly positive impact on GDP ( $\beta = 6.88e+08$ ,  $p = 0.666$ ). This discovery means that a unit increase in interest rate had no vital influence on GDP. Finally, the Wald chi2 value of 9.20 was significant at 5% level. This signpost that the explanatory variables had a combined significant influence on GDP. In other words, inflation, FDI, and interest rate jointly and substantially predicted the GDP of the countries.

**Table 9: Random-effects GLS regression**

| Variable      | Coef. ( $\beta$ ) | Robust Stderr. | Z        | P> z   |
|---------------|-------------------|----------------|----------|--------|
| FDI           | 13.72847          | 7.764327       | 1.77     | 0.077* |
| Inflation     | 4.94e+08          | 1.20e+09       | 0.41     | 0.680  |
| Interest rate | 6.88e+08          | 1.59e+09       | 1.43     | 0.666  |
| Cons          | 3.23e+10          | 1.51e+11       | 0.21     | 0.831  |
| Wald chi2(3)  | 9.20              | Prob > chi2    | 0.0267** |        |

\*significant 5% level

## 4.2. Discussions and Test of Hypothesis

The random-effects GLS regression estimator was used to explore the nexus between the studied variables, and from the results, FDI had a significantly positive effect on economic growth. The above implies that when all other variables were held fixed, a unit increase in FDI resulted in a 13.72847 increase in growth. An increase in technology, labour, and technology will cause economic growth. This finding supports the study's hypothesis that FDI had a significantly positive relationship with GDP. Juma (2012), Melnyk et al. (2014), Zekarias (2016), Iqbal et al. (2014), and Kastrati (2013), whose studies affirmed a significantly positive relationship between FDI and GDP. The finding is contradictory to that of Curwin and Mahutga (2014), Hodrob (2017), and Saqib et al. (2013), whose investigations confirmed a negative affiliation between FDI and GDP.

Also, inflation had an insignificantly positive effect on GDP. This result implies, on average, when all other factors were held constant, a unit increase in inflation did not significantly increase GDP. This finding contradicts the study's hypothesis that the inflation rate has a significantly negative relationship with economic growth. The findings also contradict that of (Fakhri (2011), Inyama (2013), Riaz and Riaz (2018), and Nyoni (2019)) whose studies established a negative relation between inflation and economic growth. The study further conflicts that of the monetarist theory that predicts a negative association between inflation and GDP. The finding, however, supports (Majumber (2016), Manamperi, N. (2014)), whose studies found an insignificantly positive connection between inflation and GDP. Differently put, an increase in the prices will cause a corresponding increase in production.

Finally, interest rate a trivially positive effect on GDP. It means that changes in interest rate did not have any material impact on the GDP of the countries. The finding is inconsistent with the study's hypothesis that interest rate had a significantly negative effect on GDP. The finding is also inconsistent with that of Udoka and Roland (2012), Babalola and Akomolafe (2015), and Saxena et al. (2019), whose studies found a negative relationship between the interest rate and GDP. The finding is, however, consistent with that of Jelilov (2016), whose study in Nigeria found an insignificantly positive relationship between the interest rate and GDP.

## 5. Conclusion and Policy Recommendation

The study investigates the influence of foreign direct investment, inflation rate, and the interest rate on economic growth (GDP). The research was conducted on ten (10) Sub-Saharan Africa countries for the period 1998-2018. This article employed the random-effect GLS regression approach to investigate the association between the dependent and independent variables. As indicated in the random-effect result in table 8, FDI had a significantly positive effect on GDP, while the inflation rate had an insignificantly positive influence on GDP. Finally, interest was an insignificantly positive determinant of GDP. Based on the findings, it is recommended that the government should put a measure in place to attract more foreign direct investment, which largely improves the standard of living of the indigents of the host nation via employment and generate taxes from businesses. Again, the government should put in measures to regulate the inflation rate in other to boost the overall

economy. As unregulated inflation leads to less produce, evolving from the high cost of production, which negatively affects the economy at large. Lastly, the central bank should regulate the interest rate to allow businesses to acquire funds from financial institutions cheaply. A high-interest rate will result in a corresponding decrease in investment. Business tends to spend and invest more when inflation rates are low, and this automatically put inflation in check.

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